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10 June 2013

Ms. Jill McKenzie
Bureau of Case Management
State of New Jersey Department of Environmental Protection
P.O. Box 424
Trenton, New Jersey 08625-0424

Subject: Former Ingersoll Rand Facility Building #7 Indoor Air Sampling

Dear Ms. McKenzie:

Geosyntec Consultants, Inc. (Geosyntec), on behalf of Ingersoll Rand Company (IR), has prepared this letter to report the findings of vapor intrusion (VI) sampling conducted at the former Ingersoll Rand Facility located in Phillipsburg, Warren County, New Jersey (the Site). This work was performed in accordance with the vapor intrusion work plan (VIWP) that was submitted to the New Jersey Department of Environmental Protection (NJDEP) for the previous vapor intrusion investigations conducted in June 2012 and January 2013, and the NJDEP Vapor Intrusion Technical Guidance Document (VITG, 3.1 March 2013)

Concentrations of volatile organic compounds (VOCs), including cis-1,2-dichloroethene (cis-DCE), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC) have been detected in groundwater samples at concentrations that exceeded the Vapor Intrusion Ground Water Screening Levels (GWSL). The NJDEP Technical Requirements for Site Remediation (TRSR, 7:26E-1.15)) requires that a receptor evaluation of the vapor intrusion pathway be performed to assess potential health risks at buildings within the critical distance of 100 feet from the identified exceedences. In June 2012, Geosyntec performed a VI investigation at the Site, collecting indoor air (IA) and sub-slab soil gas samples from four onsite buildings, as described in the May 2012 VIWP. Each of these buildings was selected based on the critical distance criteria presented in the VITG, Section 2.4.3.

Results from the June investigation provided evidence of a vapor concern Building #7, currently occupied by Curtiss Wright Corporation, related to elevated concentrations of both TCE and PCE in soil gas and indoor air. A vapor concern response action form was submitted to NJDEP on

July 16th, 2012. A Vapor Intrusion Investigation Report summarizing the findings of the entire investigation was submitted to NJDEP in August of 2012. In this report Geosyntec concluded that a potential vapor concern existed in Building 7 related to exceedences of the IASL for TCE and PCE, and that the data collected at the other three buildings did not indicate a completed VI pathway. It was noted however, that sub-slab soil gas from Building #16 contained PCE at ten times its respective soil gas screening level (SGSL). Geosyntec proposed to collect confirmatory IA samples during the heating season (Nov. 1 through March 31) to confirm the results of the initial study. Geosyntec received a response email with preliminary comments concerning the August 2012 Report from NJDEP on 27 November 2012. In the response email, NJDEP requested that Geosyntec move forward with the confirmatory sampling of Building 7, and include two additional sampling locations in occupied office space in the building. In addition, the vapor intrusion issues at the Site were discussed in a meeting with the case team at NJDEP on 11 January 2013.

Confirmatory indoor air sampling of Building 7 was conducted by Geosyntec on 22 and 23 January 2013. The results of the sampling were discussed in a *Technical Memorandum* submitted to NJDEP 11 February 2013. Geosyntec proposed no further action for Buildings #12 and #13, and the establishment of a long term monitoring program (LTM) for Buildings #7 and #16. It was also concluded that the vapor concern identified in Building #7 was exclusive to the limited-use "lean-to" structure located at the east end of the building, and therefore no further mitigation should be necessary to close the vapor concern.

In addition to the confirmatory sampling conducted at Building #7 on 22 and 23 January 2013, health and safety representatives from Curtiss Wright (Building #7 occupants) requested an additional round of indoor air sampling in the "lean-to" area and directly adjacent to the "lean-to" area in the main facility air space. Geosyntec collected indoor air samples on 4 and 5 April 2013. This letter presents a summary of the findings from the April 2013 indoor air sampling, as well as a discussion of the results.

1 DESCRIPTION OF SAMPLING METHODS

Field activities associated with the indoor air sampling began with a review of the previous indoor air building survey for Building 7, completed June 4, 2012. This survey was compared to existing building conditions, to ensure no new potential sources of VOCs in the building were

present. Procedures and methods utilized during the VI investigation were consistent with the methods described in the VIWP, as well as the guidelines presented in the VITG. A summary of the sampling methods is presented in the following subsections.

1.1 Pre-Sampling Building Survey

The results of the previous indoor air building survey (attached as Appendix A) revealed that building conditions remained unchanged since the January 2013 confirmatory sampling event, and no new potential indoor air VOC sources were present in the building. A summary of the results of the indoor air survey are presented below.

- Building 7 is utilized by Curtiss Wright for the development and testing of pump assemblies with limited areas used for office space.
- The building footprint encompasses approximately 70,000 square feet.
- Chemicals used within the facility include commercially purchased cleaners, resin solutions, epoxy adhesive solutions as well as acetone.
- There are two separately identified breathing zones within the building, the office spaces, and the main production area with an attached "lean-to" area. The entire building is heated with forced hot air, while central air conditioning is only present in the office spaces.
- The main production area was observed to be a large open space, approximately three stories tall with overhead cranes that can traverse the length of the building.
- Overall slab integrity was observed to be good condition, with no noticeable cracks or holes.

1.2 Sample Locations and Rationale

Indoor air sampling was completed on 4 and 5 April 2013, and 16 and 17 April 2013. Per the request of Curtiss Wright Health and Safety representatives, indoor air samples were collected from two locations in the facility. IA-01 was collected from inside the "lean-to" structure located at the Eastern end of the building, and IA-02 was collected directly beyond the "lean-to" wall in the main facility workspace (Figure 1). The rationale for collecting samples at these locations was to confirm whether or not the vapor concern previously identified in the building could be considered exclusive to the "lean-to". The proximity of IA-01 to IA-02, and their separation by a

partial wall provided the most ideal data set to consider whether indoor air concentrations in the "lean-to" were directly affecting the main air work space.

1.3 Indoor Air Samples

As detailed in the VITG (Section 3.5), all indoor air samples were collected within the breathing zone at a height of approximately 4 feet above grade using batch certified 6L Summa™ canisters with 5-µm filters. Indoor air samples were collected using flow controllers calibrated to collect 24-hr time integrated samples.

1.4 Laboratory Analysis of Soil Gas, and Ambient and Indoor Air Samples

All indoor air samples were analyzed by Alpha Analytical Laboratories, Inc. (Alpha) of Mansfield, Massachusetts. Alpha is certified by NJDEP for the analysis of air samples by Method TO-15 under lab certification number MA015. As per the VITG (Sections 3.3.1.3 and 3.5.3), all samples were analyzed by EPA Method TO-15 for the VOCs on the NJDEP TO-15 analyte list. Results are reported by Alpha in µg/m^3. The laboratory has provided an Electronic Data Deliverable (EDD) reporting package format that meets NJDEP requirements.

2 DATA VALIDATION

The data submitted by Alpha Analytical meets the quality assurance requirements specified in the NJDEP VITG, including collection methodologies and analysis by a NJDEP certified laboratory using NJDEP-recommended laboratory methods, analyte lists and reporting limits.

Geosyntec performed a formal data validation review of the laboratory analytical data by reviewing chain-of-custody forms, sample holding times, analytical quantitation limits, field QA/QC samples, MS/MSD analyses, and laboratory QA/QC results (method blanks, surrogates and laboratory control samples). The validation review concluded that these analytical data are representative, of known and acceptable accuracy and precision, and suitable for use in addressing the investigation objectives of this work. The data validation review was completed on 17 May 2013. A copy of the full laboratory data package may be found in Appendix B.

A summary of the data validation results are listed below:

- All method blanks, surrogates and laboratory control samples were found to be within quality control limits.
- One qualifier was reported for sample IA-01_040413; tetrahydrofuran was J qualified due to co-elution with a non-target peak.
- Indoor air sample IA-01_040413 was reported to have a sampling duration of approximately 21 hours, under the recommended 24 hour sample duration. This was due to a calibration variance in the lab supplied flow controller. No qualification was necessary.
- All analyses were performed as requested on the chain-of-custody (COC).
- All Summa canisters contained residual vacuum upon receipt from the laboratory indicating the samples were received in good condition
- Samples were analyzed within holding times.

3 SAMPLING ANALYTICAL RESULTS

On April 4 and 5, 2013 Geosyntec collected two indoor air samples from the Curtiss Wright building (Building #7). Upon analysis of the results, one of the canisters was found to defective (IA-02_040413); therefore, only one sample was considered useable (IA-01_040413). A second sampling event was conducted April 16 and 17, 2013 to complete the data gap. During this time two indoor air samples (IA-01_041713, IA-02_041713) were collected in the locations previously sampled as shown on Figure 1.

The laboratory analytical results for the indoor air samples are presented in Table 1 and Figure 2. The results of the indoor air have been compared to the NJDEP Non-Residential Indoor Air Screening Levels (NRIASLs) which were released by NJDEP on January 16, 2013. The results from each sampling location are summarized in the following subsections.

3.1 Sampling Location IA-01

The only compound detected above the NRIASLs at location IA-01 was trichloroethene (TCE) in indoor air sample IA-01_040413 (3.1 µg/m^3 compared to a screening level of 3 µg/m^3). TCE was

not detected above the NRIASL in sample IA-01_041613 (2.33 µg/m^3 compared to a screening level of 3 µg/m^3). Tetrachloroethene (PCE) was detected at 17.8 µg/m^3 in IA-01_040413 and 12.5 µg/m^3 in IA-02_040413 both below the NRIASL of 47 µg/m^3.

3.2 Sampling Location IA-02

There were no compounds were found in exceedance of the NRIASLs in indoor air sample IA-02_041713. TCE and PCE concentrations were reported as 1.49 µg/m^3 and 8.82 µg/m^3 respectively

4 CONCLUSIONS

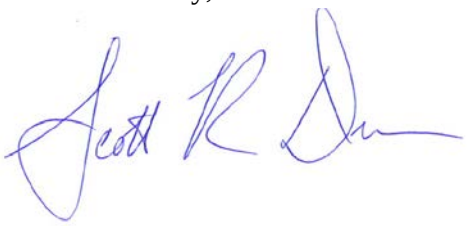
The findings of April 2013 sampling event confirm that the vapor concern identified previously in Building #7 (Curtiss Wright) is exclusive to the "lean-to" structure located at the east end of the building. The only indoor air exceedance reported in this building was located in the "lean-to" structure near IA-01. In addition, the sampling conducted during April 2013 confirmed that at IA-02, located directly adjacent to the "lean-to" on the other side of its bordering interior wall, indoor air contains no compounds above NRIASLs.

In Geosyntec's most recent visit to the Site, an institutional control was documented as being present at the facility in the form of a restricted access sign at the entry point to the "lean-to". Geosyntec proposes no further mitigation necessary with regards to VI at the building. Geosyntec plans to develop a Long Term Monitoring Plan (LTM) to monitoring the indoor air of the building until Site cleanup efforts have resulted in the remediation of the suspected VI source.

Upon approval from the NJDEP for the actions proposed above, Geosyntec plans to submit a LTM plan to the NJDEP in accordance with section 6.5.2 of the VITG.

We look forward to discussing the results and conclusions of this investigation with you.

Sincerely,



Scott R. Drew, L.S.R.P.
Associate

cc/

Dawn Horst, Ingersoll Rand Company

Enclosures:
Figure 1: April 2013 Indoor Air Sampling Locations
Figure 2: April 2013 Indoor Air Sampling Results
Table 1: April 2013 Indoor Air Sampling Results
Appendix A: Building 7 Indoor Air Survey
Appendix B: Full Data Report

TABLE 1
CONFIRMATORY INDOOR AND OUTDOOR AIR ANALYTICAL RESULTS
Former Ingersoll Rand Facility
Phillipsburg, NJ

Location ID:	NJDEP	Curtiss Wright Building (#7)													
Sample ID:	Nonresidential Indoor Air Screening Levels	IA-01		DUP-01		IA-02		IA-03		IA-04		IA-05		OA-01	
Date Sampled:		1/23/2013		1/23/2013		1/23/2013		1/23/2013		1/23/2013		1/23/2013		1/23/2013	
TO-15 Volatile Organic Compounds (µg/m^3)															
Acetone	140,000	**7.15**	**J**	**13.1**	**J**	**196**		**82.4**		**177**		**10.97**		**6.94**	
Benzene	2	0.639	UJ	**0.888**	**J**	**0.674**		**0.68**		**0.649**		**0.712**		0.639	U
Bromodichloromethane	3	1.34	U	1.4	U	1.34	U	1.34	U	1.34	U	1.34	U	1.34	U
Bromoform	11	2.07	U	2.16	U	2.07	U	2.07	U	2.07	U	2.07	U	2.07	U
Bromomethane	22	0.777	U	0.812	U	0.777	U	0.777	U	0.777	U	0.777	U	0.777	U
1,3-Butadiene	1	0.442	U	0.462	U	0.442	U	0.442	U	0.422	U	0.442	U	0.442	U
2-Butanone	22,000	0.59	UJ	**1.73**	**J**	**1.11**		**1.19**		**1.02**		**1.08**		**0.661**	
Carbon disulfide	3,100	0.623	U	0.651	U	0.623	U	0.623	U	0.623	U	0.623	U	0.623	U
Carbon tetrachloride	3	1.26	U	1.31	U	1.26	U	1.26	U	1.26	U	1.26	U	1.26	U
Chlorobenzene	220	0.921	U	0.963	U	0.921	U	0.921	U	0.921	U	0.921	U	0.921	U
Chloroethane	44,000	0.528	U	0.552	U	0.528	U	0.528	U	0.528	U	0.528	U	0.528	U
Chloroform	2	0.977	U	1.02	U	0.977	U	0.977	U	0.977	U	0.977	U	0.977	U
Chloromethane	390	**1.04**		**1.21**		**1.02**		**0.991**		**1**		**1.08**		**1.26**	
3-Chloropropene	2	0.626	U	0.654	U	0.626	U	0.626	U	0.626	U	0.626	U	0.626	U
2-Chlorotoluene	NS	1.04	U	1.08	U	1.04	U	1.04	U	1.04	U	1.04	U	1.04	U
Cyclohexane	26,000	0.688	U	0.719	U	0.688	U	0.688	U	0.688	U	0.688	U	0.688	U
Dibromochloromethane	4	1.7	U	1.78	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
1,2-Dibromoethane	4	1.54	U	1.61	U	1.54	U	1.54	U	1.54	U	1.54	U	1.54	U
1,2-Dichlorobenzene	880	1.2	U	1.26	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
1,3-Dichlorobenzene	NS	1.2	U	1.26	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
1,4-Dichlorobenzene	3	1.2	U	1.26	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Dichlorodifluoromethane	440	**2.84**		**3.36**		**2.98**		**2.82**		**3.04**		**2.8**		1.704	U
1,1-Dichloroethane	8	0.809	U	0.846	U	0.809	U	0.809	U	0.809	U	0.809	U	0.809	U
1,2-Dichloroethane	2	0.809	U	0.846	U	0.81	U	0.81	U	0.809	U	0.809	U	0.809	U
1,1-Dichloroethene	880	0.793	U	0.829	U	0.793	U	0.793	U	0.793	U	0.793	U	0.793	U
cis-1,2-Dichloroethene	NS	0.793	U	0.829	U	**5.04**		**1.53**		**1.25**		0.793	U	0.793	U
trans-1,2-Dichloroethene	260	0.793	U	0.829	U	0.793	U	0.793	U	0.793	U	0.793	U	0.793	U
1,2-Dichloropropane	2	0.924	U	0.966	U	0.924	U	0.924	U	0.924	U	0.924	U	0.924	U
cis-1,3-Dichloropropene	NS	0.908	U	0.949	U	0.908	U	0.908	U	0.908	U	0.908	U	0.908	U
trans-1,3-Dichloropropene	NS	0.908	U	0.949	U	0.908	U	0.908	U	0.908	U	0.908	U	0.908	U
1,3-Dichloropropene (total)	3	0.908	U	0.95	U	0.908	U	0.908	U	0.908	U	0.908	U	0.908	U
1,4-Dioxane	NS	0.721	U	0.753	U	0.721	U	0.721	U	0.721	U	0.721	U	0.721	U
Ethanol	NS	**86.9**		**105**		4.71	U	4.71	U	4.71	U	**74.4**		4.71	U
Ethylbenzene	5	0.869	U	0.908	U	0.869	U	0.869	U	0.869	U	0.869	U	0.869	U
4-Ethyltoluene	NS	0.983	U	1.03	U	0.983	U	0.983	U	0.983	U	0.983	U	0.983	U
Freon-113	NS	1.53	U	1.6	U	1.53	U	1.53	U	1.53	U	1.53	U	1.53	U
Freon-114	NS	1.4	U	1.46	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Heptane	NS	0.82	U	**2.84**		**1.09**		**1.64**		**0.877**		0.82	U	0.82	U
Hexachlorobutadiene	5	2.13	U	2.23	U	2.13	U	2.13	U	2.13	U	2.13	U	2.13	U
n-Hexane	3,100	0.705	UJ	**3.29**	**J**	0.705	U	0.705	U	0.705	U	**1.1**		**0.825**	
Isopropanol	NS	**5.14**		**6.64**		**34.2**		**52.8**		**17.5**		**11.85**		1.23	U
Methyl Methacrylate	NS	2.05	U	2.14	U	2.05	U	2.05	U	2.05	U	2.05	U	2.05	U
Methylene chloride	1,200	**5.42**	**J**	3.65	UJ	3.47	U	3.47	U	3.47	U	**8.96**		**16.5**	
4-Methyl-2-pentanone	13,000	0.82	U	0.857	U	0.82	U	0.82	U	0.82	U	**1.43**		0.82	U
Methyl tert butyl ether	47	0.721	U	0.753	U	0.721	U	0.721	U	0.721	U	0.721	U	0.721	U
Styrene	4,400	0.852	U	0.89	U	**29**		**10.7**		**28.1**		0.852	U	0.852	U
Tertiary butyl Alcohol	NS	1.52	U	1.59	U	1.52	U	1.52	U	1.52	U	1.52	U	1.52	U
1,1,2,2-Tetrachloroethane	3	1.37	U	1.44	U	1.37	U	1.37	U	1.37	U	1.37	U	1.37	U
Tetrachloroethene	47	**4.22**		**5.07**		**26.1**		**16.4**		**9.43**		**3.19**		1.36	U
Tetrahydrofuran	NS	0.59	U	0.616	U	0.59	U	0.59	U	0.59		0.59	U	0.59	U
Toluene	22,000	0.754	UJ	**1.19**	**J**	**4.6**		**6.71**		**3.64**		**1.22**		0.754	U
1,2,4-Trichlorobenzene	9	1.48	U	1.55	U	1.48	U	1.48	U	1.49	U	1.49	U	1.49	U
1,1,1-Trichloroethane	22,000	1.09	U	1.14	U	1.09	U	1.09	U	1.09	U	1.09	U	1.09	U
1,1,2-Trichloroethane	3	1.09	U	1.14	U	1.09	U	1.09	U	1.09	U	1.09	U	1.09	U
Trichloroethene	3	**1.39**		**1.84**		**6.23**		**2.77**		**1.75**		1.07	U	1.08	U
Trichlorofluoromethane (Freon 11)	3,100	**2.51**		**2.86**		**1.8**		**1.66**		**1.75**		**3.5**		**1.65**	
1,2,4-Trimethylbenzene	NS	0.983	U	1.55	U	**1.41**		**2.43**		**1.14**		0.983	U	0.983	U
1,3,5-Trimethylbenzene	NS	0.983	U	1.03	U	0.983	U	**1.15**		0.983	U	0.983	U	0.983	U
2,2,4-Trimethylpentane	NS	0.934	U	0.976	U	0.934	U	0.934	U	0.934	U	0.934	U	0.934	U
Vinyl bromide	NS	0.874	U	0.914	U	0.874	U	0.874	U	0.874	U	0.874	U	0.874	U
Vinyl chloride	3	0.511	U	0.534	U	0.511	U	0.511	U	0.511	U	0.511	U	0.511	U
o-Xylene	NS	0.869	U	0.908	U	**1.27**		**1.77**		**1.05**		0.869	U	0.869	U
p/m-Xylene	NS	1.74	U	1.82	U	**3.37**		**4.6**		**2.94**		1.74	U	1.74	U
Xylenes (total)	440	1.74	U	1.82	U	**4.64**		**6.37**		**3.99**		1.74	U	1.74	U

Notes:

µg/m^3 - micrograms per cubic meter

Bolded values represent compounds above laboratory reporting limits

Bordered, Bold and shaded values - represent NJDEP screening level exceedances

NS - No Screening Level for compound

U - undetected, associated value is the method reporting limit

J - result is estimated

TABLE 2
SUB-SLAB SOIL GAS ANALYTICAL RESULTS
Former Ingersoll Rand Facility
Phillipsburg, NJ

Location ID:	NJDEP Nonresidential Soil Gas Screening Levels	VI-7		VI-12		VI-12		VI-13		VI-16	
Sample ID:		SSP-7		SSP-12		DUP-01		SSP-13		SSP-16	
Date Sampled:		6/12/2012		6/12/2012		6/12/2012		6/12/2012		6/12/2012	
TO-15 Volatile Organic Compounds (µg/m^3)											
Acetone	6,800,000	**556**	**D**	**40.1**	**D**	**30.2**	**D**	**546**	**D**	**449**	**D**
Benzene	79	**37.4**	**D**	**1.83**	**D**	**1.98**	**D**	3.19	U	***27.6***	***U***
Bromodichloromethane	34	***63.8***	***U***	2.67	U	2.69	U	6.7	U	***57.8***	***U***
Bromoform	560	98.4	U	4.12	U	4.15	U	10.3	U	89.2	U
Bromomethane	1,100	37	U	1.54	U	1.56	U	3.88	U	33.5	U
1,3-Butadiene	20	***21.1***	***U***	0.88	U	0.887	U	2.21	U	***19.1***	***U***
2-Butanone	1,100,000	28.1	U	**6.28**	**D**	**6.31**	**D**	**150**	**D**	25.4	U
Carbon disulfide	150,000	29.6	U	**2.71**	**D**	**1.41**	**D**	**10.6**	**D**	26.9	U
Carbon tetrachloride	100	***59.9***	***U***	2.5	U	2.52	U	6.29	U	***54.3***	***U***
Chlorobenzene	11,000	**87.5**	**D**	1.83	U	1.85	U	4.6	U	**42.9**	**D**
Chloroethane	2,200,000	25.1	U	1.05	U	1.06	U	2.64	U	22.8	U
Chloroform	27	***46.5***	***U***	1.94	U	1.96	U	4.88	U	***42.1***	***U***
Chloromethane	20,000	19.6	U	0.822	U	0.828	U	2.06	U	17.8	U
3-Chloropropene	100	29.8	U	1.24	U	1.26	U	3.13	U	27	U
2-Chlorotoluene	NS	49.3	U	2.06	U	2.08	U	5.18	U	44.7	U
Cyclohexane	1,300,000	32.8	U	1.37	U	1.38	U	**3.75**	**D**	29.7	U
Dibromochloromethane	43	***81.1***	***U***	3.39	U	3.42	U	8.52	U	***73.5***	***U***
1,2-Dibromoethane	38	***73.2***	***U***	3.06	U	3.08	U	7.68	U	***66.3***	***U***
1,2-Dichlorobenzene	44,000	**66.7**	**D**	2.39	U	2.41	U	6.01	U	51.9	U
1,3-Dichlorobenzene	NS	57.2	U	2.39	U	2.41	U	6.01	U	51.9	U
1,4-Dichlorobenzene	56	***57.2***	***U***	2.39	U	2.41	U	6.01	U	***51.9***	***U***
Dichlorodifluoromethane	22,000	47.1	U	**2.01**	**D**	**2.28**	**D**	4.94	U	42.7	U
1,1-Dichloroethane	380	38.5	U	1.61	U	1.62	U	**15.2**	**D**	**54.6**	**D**
1,2-Dichloroethane	24	***38.5***	***U***	1.61	U	1.62	U	4.05	U	***34.9***	***U***
1,1-Dichloroethene	44,000	37.7	U	1.58	U	1.59	U	**85.2**	**D**	**515**	**D**
cis-1,2-Dichloroethene	NS	**2820**	**D**	**2.79**	**D**	1.59	U	3.96	U	34.2	U
trans-1,2-Dichloroethene	13,000	37.7	U	1.58	U	1.59	U	3.96	U	34.2	U
1,2-Dichloropropane	61	***44***	***U***	1.84	U	1.85	U	4.62	U	***39.9***	***U***
cis-1,3-Dichloropropene	NS	43.2	U	1.81	U	1.82	U	4.54	U	39.2	U
trans-1,3-Dichloropropene	NS	43.2	U	1.81	U	1.82	U	4.54	U	39.2	U
1,3-Dichloropropene (total)	150	43.2	U	1.81	U	1.82	U	4.54	U	39.2	U
1,4-Dioxane	NS	34.3	U	1.43	U	1.44	U	3.6	U	**164**	**D**
Ethanol	NS	224	U	**31.8**	**D**	**28.4**	**D**	**129**	**D**	203	U
Ethylbenzene	250	**108**	**D**	**2.49**	**D**	**2.6**	**D**	**16.7**	**D**	37.5	U
4-Ethyltoluene	NS	46.8	U	1.96	U	1.97	U	4.92	U	42.4	U
Freon-113	NS	73	U	3.05	U	3.07	U	7.66	U	66.1	U
Freon-114	NS	66.5	U	2.78	U	2.8	U	6.99	U	60.3	U
Heptane	NS	39	U	1.63	U	1.64	U	**11.2**	**D**	35.4	U
Hexachlorobutadiene	53	***102***	***U***	4.24	U	4.28	U	10.7	U	***92***	***U***
n-Hexane	150,000	33.6	U	1.4	U	1.41	U	**13.8**	**D**	30.4	U
Isopropanol	NS	**112**	**D**	**19.2**	**D**	**14**	**D**	**54.1**	**D**	**152**	**D**
Methyl Methacrylate	NS	97.4	U	4.08	U	4.09	U	10.2	U	88.4	U
Methylene chloride	61,000	**275**	**D**	**152**	**D**	**158**	**D**	**131**	**D**	150	U
4-Methyl-2-pentanone	660,000	39	U	1.63	U	1.64	U	**20.1**	**D**	35.4	U
Methyl tert butyl ether	2,400	34.3	U	1.43	U	1.44	U	3.6	U	31.1	U
Styrene	220,000	40.5	U	1.69	U	1.71	U	4.26	U	36.7	U
Tertiary butyl Alcohol	NS	72.1	U	3.02	U	3.03	U	**10.7**	**D**	65.5	U
1,1,2,2-Tetrachloroethane	34	65.4	U	2.73	U	2.75	U	6.87	U	59.3	U
Tetrachloroethene	2,400	**19400**	**D**	**30.9**	**D**	**7.73**	**D**	**113**	**D**	**30500**	**D**
Tetrahydrofuran	NS	28.1	U	1.17	U	1.18	U	2.95	U	25.4	U
Toluene	1,100,000	**67.8**	**D**	**2.97**	**D**	**2.94**	**D**	**14.5**	**D**	32.5	U
1,2,4-Trichlorobenzene	440	70.7	U	2.95	U	2.98	U	7.42	U	64.1	U
1,1,1-Trichloroethane	1,100,000	**807**	**D**	**5.3**	**D**	**3.31**	**D**	**1540**	**D**	**8400**	**D**
1,1,2-Trichloroethane	38	***51.9***	***U***	2.17	U	2.19	U	5.46	U	***47.1***	***U***
Trichloroethene	150	**8220**	**D**	**10.6**	**D**	2.16	U	5.37	U	**162**	**D**
Trichlorofluoromethane (Freon 11)	150,000	53.5	U	**2.26**	**D**	2.25	U	5.62	U	**121**	**D**
1,2,4-Trimethylbenzene	NS	46.8	U	1.96	U	1.97	U	**8.31**	**D**	42.4	U
1,3,5-Trimethylbenzene	NS	46.8	U	1.96	U	1.97	U	**8.06**	**D**	42.4	U
2,2,4-Trimethylpentane	NS	44.5	U	1.86	U	1.87	U	4.67	U	40.3	U
Vinyl bromide	NS	41.6	U	1.74	U	1.75	U	4.37	U	37.7	U
Vinyl chloride	140	24.3	U	1.02	U	1.02	U	2.56	U	22.1	U
o-Xylene	NS	**221**	**D**	**5.08**	**D**	**4.78**	**D**	**39.1**	**D**	37.5	U
p/m-Xylene	NS	**578**	**D**	**10.6**	**D**	**10.8**	**D**	**98.2**	**D**	74.7	U
Xylenes (total)	22,000	**799**	**D**	**15.68**	**D**	**15.58**	**D**	**137.3**	**D**	74.7	U

Notes:

µg/m^3 - micrograms per cubic meter
Bolded values represent compounds above laboratory reporting limits
Bordered, Bold and shaded values - represent NJDEP screening level exceedances
Bolded and Italicized values represent laboratory reporting limits above the NJDEP screening levels
NS - No Screening Level for compound
U - undetected, associated value is the method reporting limit
D - result from diluted sample

TABLE 3
INDOOR AND OUTDOOR AIR ANALYTICAL RESULTS
Former Ingersoll Rand Facility
Phillipsburg, NJ

Location ID:	NJDEP	VI-7		VI-13		VI-16		OA-01	
Sample ID:	Nonresidential Indoor Air	IA-7		IA-13		IA-16		OA-01	
Date Sampled:	Screening Levels	6/12/2012		6/12/2012		6/12/2012		6/12/2012	
TO-15 Volatile Organic Compounds (µg/m^3)									
Acetone	140,000	**751**	**D**	**22.9**		**4.25**		**5.42**	
Benzene	2	0.639	U	**0.783**		0.639	U	0.639	U
Bromodichloromethane	3	1.34	U	1.34	U	1.34	U	1.34	U
Bromoform	11	2.07	U	2.07	U	2.07	U	2.07	U
Bromomethane	22	0.777	U	0.777	U	0.777	U	0.777	U
1,3-Butadiene	1	0.442	U	0.442	U	0.442	U	0.442	U
2-Butanone	22,000	**3.07**		**5.07**		**2.36**		**0.664**	
Carbon disulfide	3,100	0.623	U	0.623	U	0.623	U	0.623	U
Carbon tetrachloride	3	1.26	U	1.26	U	1.26	U	1.26	U
Chlorobenzene	220	0.921	U	0.921	U	0.921	U	0.921	U
Chloroethane	44,000	0.528	U	0.528	U	0.528	U	0.528	U
Chloroform	2	0.977	U	0.977	U	**1.69**		0.977	U
Chloromethane	390	**0.82**		**0.962**		**1.1**		**0.886**	
3-Chloropropene	2	0.626	U	0.626	U	0.626	U	0.626	U
2-Chlorotoluene	NS	1.04	U	1.04	U	1.04	U	1.04	U
Cyclohexane	26,000	0.688	U	0.688	U	0.688	U	0.688	U
Dibromochloromethane	4	1.7	U	1.7	U	1.7	U	1.7	U
1,2-Dibromoethane	4	1.54	U	1.54	U	1.54	U	1.54	U
1,2-Dichlorobenzene	880	1.2	U	1.2	U	1.2	U	1.2	U
1,3-Dichlorobenzene	NS	1.2	U	1.2	U	1.2	U	1.2	U
1,4-Dichlorobenzene	3	1.2	U	1.2	U	1.2	U	1.2	U
Dichlorodifluoromethane	440	**2.47**		**1.64**		**2.43**		**1.27**	
1,1-Dichloroethane	8	0.809	U	0.809	U	0.809	U	0.809	U
1,2-Dichloroethane	2	0.809	U	0.809	U	0.809	U	0.809	U
1,1-Dichloroethene	880	0.793	U	0.793	U	0.793	U	0.793	U
cis-1,2-Dichloroethene	NS	**4.28**		0.793	U	0.793	U	0.793	U
trans-1,2-Dichloroethene	260	0.793	U	0.793	U	0.793	U	0.793	U
1,2-Dichloropropane	2	0.924	U	0.924	U	0.924	U	0.924	U
cis-1,3-Dichloropropene	NS	0.908	U	0.908	U	0.908	U	0.908	U
trans-1,3-Dichloropropene	NS	0.908	U	0.908	U	0.908	U	0.908	U
1,3-Dichloropropene (total)	3	0.908	U	0.908	U	0.908	U	0.908	U
1,4-Dioxane	NS	0.721	U	0.721	U	0.721	U	0.721	U
Ethanol	NS	4.71	U	**16.1**		**135**		4.71	U
Ethylbenzene	5	0.869	U	**18.7**		0.869	U	0.869	U
4-Ethyltoluene	NS	0.983	U	0.983	U	0.983	U	0.983	U
Freon-113	NS	1.53	U	1.53	U	1.53	U	1.53	U
Freon-114	NS	1.4	U	1.4	U	1.4	U	1.4	U
Heptane	NS	0.82	U	**1.27**		**0.93**		0.82	U
Hexachlorobutadiene	5	2.13	U	2.13	U	2.13	U	2.13	U
n-Hexane	3,100	0.705	U	**1.9**		0.705	U	0.705	U
Isopropanol	NS	**17.3**		1.23	U	**8.06**		1.23	U
Methyl Methacrylate	NS	2.05	U	2.05	U	2.05	U	2.05	U
Methylene chloride	1,200	3.47	U	**479**	**D**	**5.24**		3.47	U
4-Methyl-2-pentanone	13,000	0.82	U	**2.79**		0.82	U	0.82	U
Methyl tert butyl ether	47	0.721	U	0.721	U	0.721	U	0.721	U
Styrene	4,400	**89.4**		0.852	U	0.852	U	0.852	U
Tertiary butyl Alcohol	NS	1.52	U	1.52	U	1.52	U	1.52	U
1,1,2,2-Tetrachloroethane	3	1.37	U	1.37	U	1.37	U	1.37	U
Tetrachloroethene	47	**18.7**		1.36	U	1.36	U	1.36	U
Tetrahydrofuran	NS	**1.3**		0.59	U	0.59	U	0.59	U
Toluene	22,000	**2.18**		**4.86**		**1.43**		0.754	U
1,2,4-Trichlorobenzene	9	1.48	U	1.48	U	1.48	U	1.48	U
1,1,1-Trichloroethane	22,000	1.09	U	**2.86**		1.09	U	1.09	U
1,1,2-Trichloroethane	3	1.09	U	1.09	U	1.09	U	1.09	U
Trichloroethene	3	**5.8**		1.07	U	1.07	U	1.07	U
Trichlorofluoromethane (Freon 11)	3,100	**1.86**		**1.3**		**13.1**		**1.21**	
1,2,4-Trimethylbenzene	NS	0.983	U	**1.41**		0.983	U	0.983	U
1,3,5-Trimethylbenzene	NS	0.983	U	0.983	U	0.983	U	0.983	U
2,2,4-Trimethylpentane	NS	0.934	U	0.934	U	0.934	U	0.934	U
Vinyl bromide	NS	0.874	U	0.874	U	0.874	U	0.874	U
Vinyl chloride	3	0.511	U	0.511	U	0.511	U	0.511	U
o-Xylene	NS	**0.895**		**31.2**		0.869	U	0.869	U
p/m-Xylene	NS	**2.04**		**79**		1.74	U	1.74	U
Xylenes (total)	440	**2.94**		**110.2**		1.74	U	1.74	U

Notes:

µg/m^3 - micrograms per cubic meter
Bolded values represent compounds above laboratory reporting limits
Bordered, Bold and shaded values - represent NJDEP screening level exceedances
NS - No Screening Level for compound
U - undetected, associated value is the method reporting limit
D - result from diluted sample

Sample ID:	IA-02
Date Sampled:	1/23/2013
Units:	µg/m³
TO-15 VOCs	
Acetone	**196**
Benzene	**0.674**
2-Butanone	**1.11**
Chloromethane	**1.02**
Dichlorodifluoromethane	**2.98**
cis-1,2-Dichloroethene	**5.04**
Heptane	**1.09**
Isopropanol	**34.2**
Styrene	**29**
Tetrachloroethene	**26.18**
Toluene	**4.6**
Trichloroethene	**6.23**
Trichlorofluoromethane (Freon 11)	**1.8**
1,2,4-Trimethylbenzene	**1.41**
o-Xylene	**1.27**
p/m-Xylene	**3.37**
Xylenes (total)	**4.64**

Sample ID:	OA-01
Date Sampled:	1/23/2013
Units:	µg/m³
TO-15 VOCs	
Acetone	**6.94**
2-Butanone	**0.661**
Chloromethane	**1.26**
n-Hexane	**0.825**
Methylene chloride	**16.5**
Trichlorofluoromethane (Freon 11)	**1.65**

Sampled ID:	IA-03
Date Sampled:	1/23/2013
Units:	µg/m³
TO-15 VOCs	
Acetone	**82.4**
Benzene	**0.68**
2-Butanone	**1.19**
Chloromethane	**0.991**
Dichlorodifluoromethane	**2.82**
cis-1,2-Dichloroethene	**1.53**
Heptane	**1.64**
Isopropanol	**52.8**
Styrene	**10.7**
Tetrachloroethene	**16.4**
Toluene	**6.71**
Trichloroethene	**2.77**
Trichlorofluoromethane (Freon 11)	**1.66**
1,2,4-Trimethylbenzene	**2.43**
1,3,5-Trimethylbenzene	**1.15**
0-Xylene	**1.77**
p/m-Xylene	**4.6**
Xylenes (total)	**6.37**

Sample ID:	IA-04
Date Sampled:	1/23/2013
Units	µg/m³
TO-15 VOCs	
Acetone	**177**
Benzene	**0.649**
2-Butanone	**1.02**
Chloromethane	**1**
Dichlorodifluoromethane	**3.04**
cis-1,2-Dichloroethene	**1.25**
Heptane	**0.877**
Isopropanol	**17.5**
Styrene	**28.1**
Tetrachloroethene	**9.43**
Toluene	**3.64**
Trichloroethene	**1.75**
Trichlorofluoromethane (Freon 11)	**1.75**
1,2,4-Trimethylbenzene	**1.14**
o-Xylene	**1.05**
p/m-Xylene	**2.94**
Xylenes (total)	**3.99**

Sample ID:	IA-01	DUP-01
Date Sampled:	1/23/2013	
Units:	µg/m³	
TO-15 VOCs		
Acetone	**7.15 J**	**13.1 J**
Benzene	0.639 UJ	**0.888 J**
2-Butanone	0.59 UJ	**1.73 J**
Chloromethane	**1.04**	**1.21**
Dichlorodifluoromethane	**2.84**	**3.36**
Ethanol	**86.9**	**105**
Heptane	0.82 U	**2.84**
n-Hexane	0.705 UJ	**3.29 J**
Isopropanol	**5.14**	**6.64**
Methylene chloride	**5.42 J**	3.65 UJ
Tetrachloroethene	**4.22**	**5.07**
Toluene	0.754 UJ	**1.19 J**
Trichloroethene	**1.39**	**1.84**
Trichlorofluoromethane (Freon 11)	**2.51**	**2.86**

Sample ID:	IA-05
Date Sampled:	1/23/2013
Units:	µg/m³
TO-15 VOCs	
Acetone	**10.97**
Benzene	**0.712**
2-Butanone	**1.08**
Chloromethane	**1.08**
Dichlorodifluoromethane	**2.8**
Ethanol	**74.4**
n-Hexane	**1.1**
Isopropanol	**11.85**
Methylene chloride	**8.96**
4-Methyl-2-pentanone	**1.43**
Tetrachloroethene	**3.19**
Toluene	**1.22**
Trichlorofluoromethane (Freon 11)	**3.5**

Former Transformer Pad

RW09

"Lean-to" Structure

Bldg 7

Main Production Area

office space

MW31

Bldg 25

Bldg 10

Bldg 34

Bldg 8

Bldg 9

N

Legend

- Indoor Air Locations
- Outdoor Air Locations
- Recovery Well
- Monitoring Well

Bolded values represent compounds above laboratory reporting limits

Bordered, Bold and shaded values - represent NJDEP Nonresidential Indoor Air Screening Level exceedances

Bolded and Italicized values represent laboratory reporting limits above the NJDEP screening levels

U - undetected, associated value is the method reporting limit

J - result is estimated

µg/m³ - micrograms per cubic meter

50 25 0 50 Feet

Building 7 Confirmatory Sampling Results

Former Ingersoll Rand Facility,
Phillipsburg, NJ

Geosyntec consultants

Princeton, NJ | January 2013

Figure 1

Path: P:\PRJ\NJ0074 - IR Phillipsburg\GIS\Projects\VI\IR VI Building 7 Layout\2013 Results.mxd

RW07
RW08A
RW08
MW10
MW13
RW15
MW01
MW27
THby4
MW52
VI-13
WW1
28
63
16
29
THWLS
22
RW14
MW32
VOC/TPH > MSSCC
(AOC-1/19)
17B
VI-16
MW54
13
MW15
66
VOC > MSSCC
(AOC-45)
WW3
TPH > MSSCC
(AOC-39)
MW56
24
17A
25
12
55
19
VI-12
8
RW11
OA-01
TPH > MSSCC
(AOC-12)
34
10
15
RW12
VI-7
9
RW13
7
MW11
36
MW16
23
MW31
20
11
6
MW24
26
RW10
Center St
101
MW40
MW41

N

Legend

- Monitoring Well
- Recovery Well
- Impacted Soils
- Fenceline
- Buildings
- Surface Water Features and Drainages
- Former Ingersoll Rand Property Boundary
- June 2012 Indoor Air/Sub-slab Soil Gas Sample Location
- June 2012 Outdoor Air Sample Location
- 105 Building ID
- Well had no compounds found above VIGWSL
- Depth to Water >= 100'
- Clean Water Lens

240 120 0 240 Feet

Site Layout

Former Ingersoll Rand Facility,
Phillipsburg, NJ

Geosyntec consultants

Princeton, NJ | January 2013

Figure 2

Path: F:\PRJ\1\JR0074 - IR Phillipsburg\3\GIS\Projects\VI\JR_VI_SiteLayout.mxd